

3. Rigid rockers of any configuration or design which would facilitate the connection of the pistons to the output crank shaft in a dual face to face piston engine is a description of my invention.

BACK GROUND OF THE INVENTION

The dual rigid rocker marriage should revolutionize the dual piston engine. This concept is the most economical way to inner connect the dual piston to the output train. This rigid rocker marriage will finally enable the dual piston concept to be constructed economically and be more efficient than the separate crank end concept.

DETAILED DESCRIPTION OF THE INVENTION

Dual face to face, rigid rocker marriage concept entails several significant advantages over the conventional internal combustion engine. The operation of this engine and some of its advantages over the single piston concept follows:

In figure1

Dual pistons (1) and (2) move outward on its combustion cycle, forcing rigid rockers 7 and 8 away from each other at points (3) and (4). Points (9) and (10) are forced towards each other, causing a clock wise rotating action of points

(11) and (12) this energy is transferred to output shaft (13). Points (5) and (6) are center support axis for the rigid rockers 7 and 8.

1. While the dual pistons move away from each other, they travel approximately $\frac{1}{2}$ the distance of a single piston conventional engine, allowing a dual piston engine to cycle at higher (RPM) rotations per minute.

2. In a single piston concept, the single piston cycles in its cylinder against a fixed head, causing some energy to be lost compared to this dual concept.

3. In this dual concept, the two opposing pistons travel too and fro in a single cylinder allowing for higher compression in the cylinder, which will increase the engine's efficiency.

4. By the two pistons moving to and fro in a single cylinder will allow for greater heat dissipation. A great amount of heat is generated against the stationary head of a single piston cylinder requiring greater cooling action of the head. The additional heat generated against the stationary head of a conventional engine may equal additional energy loss and wear.

5. Due to the imposing thrust upon the crank shaft 90° apart in a dual piston configuration will cause equal opposing forces upon the crank shaft. These opposing forces will cause main bearing wear to be closer to zero.

6. Proportionally, more work will be accomplished in a dual piston engine, using less fuel to achieve the same work.

7. Due to pistons (1) and (2) traveling about $\frac{1}{2}$ the distance of a conventional engine, each piston will wear longer.

8. By the rockers 7 and 8 actuating to and fro approximately 45° in each direction from their axis at (5) and (6) the piston rods will wear less on their axis (1), (2), (3) & (4) in a complete 4 cycle revolution compared to a 360° cycle of a conventional engine. The “dual face to face rigid rocker marriage concept” will enable the construction of piston rods and pistons to be much lighter in weight, allowing for higher RPM'S.

9. The connecting links (9) and (10) may be constructed more rigidly to the crank since piston rods (3) and (4) won't be directly associated to the output crank.

10. The rigid rockers 7 and 8 may be constructed much cheaper than a crank shaft, and will certainly last longer, since there won't be a 360° cycle. These rockers will cycle about 45° to and fro of its axis (5) and (6) twice to complete 4 cycles of the engine operation (intake-compression-combustion, and exhaust).

In figure 3:

21 is replaceable bushings

22 is replaceable hinge pin which hinges rigid rocker on its center axis.

23 is replaceable hinge pin which connects connecting rod from rigid rocker to main output crankshaft.

24 is replaceable hinge pin which connects piston rod from rigid rocker to piston.

Fig 4 is rockers designed to shorten the piston rods and the crankshaft rods of my invention.

Fig 5 of my invention is offset rockers which will specifically accommodate the offset cylinders of invention #6250263.

Fig 6 is straight axis which may not require altering the piston rods and crankshaft rods of my invention